

wherein:

(a) Z is oxygen, NX_1 , or sulfur, where X_1 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(b) n is 0, 1, 2, 3, or 4;

(c) A_2 , A_3 , A_4 and A_5 are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur,

provided that if any of A_2 , A_3 , A_4 and A_5 is nitrogen, oxygen, or sulfur, said A_2 , A_3 , A_4 and A_5 is not substituted with R_6 , R_7 , R_8 or R_9 ;

A_1 is nitrogen or carbon;

(d) R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 are independently selected from the group consisting of:

(i) hydrogen;

(ii) saturated or unsaturated alkyl;

(iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(iv) benzyl;

(v) halogen or trihalomethyl;

(vi) a ketone of formula $-\text{CO}-\text{X}_4$, where X_4 is selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(vii) a carboxylic acid of formula $-(\text{X}_5)_{n5}-\text{COOH}$ or ester of formula $-(\text{X}_6)_{n6}-\text{COOX}_7$, where X_5 , X_6 , and X_7 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n5$ and $n6$ are each independently 0 or 1;

(viii) an alcohol of formula $-(X_8)_{n8}-OH$ or an alkoxy moiety of formula $-(X_8)_{n8}-OX_9$, where X_8 and X_9 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n8$ is 0 or 1, and where said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(ix) $-NHCOX_{10}$, where X_{10} is selected from the group consisting of alkyl, hydroxyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties, wherein said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(x) $-SO_2NX_{11}X_{12}$, where X_{11} and X_{12} are selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties; and

(xi) a five-membered or six-membered heteroaryl or six-membered aryl ring moiety optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester moieties;

(xii) $-OX_7$, where X_7 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and a five-membered or six-membered aryl or heteroaryl ring moiety;

(e) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 , and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered aryl ring moiety, wherein said five-membered or six-membered heteroaryl or six-membered aryl ring comprises two carbon atoms of said quinazoline-based compound to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached; and

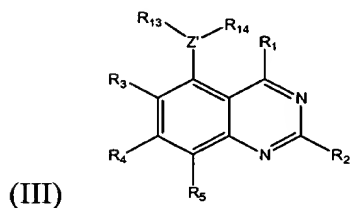
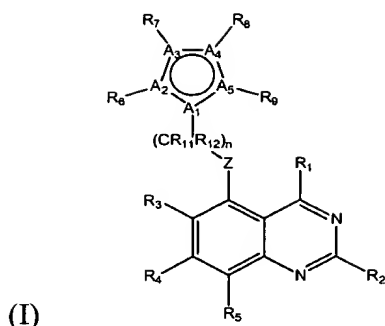
(f) R_{11} and R_{12} are independently selected from the group consisting of

(i) hydrogen;

(ii) saturated or unsaturated alkyl; and

(g) Z' is carbon or nitrogen and R_{13} and R_{14} taken together form a five-membered or six-membered heteroaryl ring with Z' as a ring member, wherein said ring is optionally substituted with one, two or three alkyl, halogen, trihalomethyl, carboxylate, and ester moieties.

11. (Twice amended) The method of claim 1, wherein said quinazoline-based compound has the formula set forth in structure I or III:



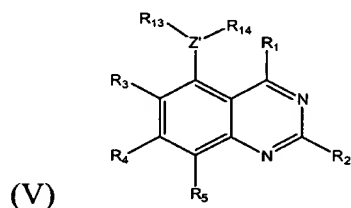
wherein:

- C²
- (a) Z is oxygen, NX₁, or sulfur, where X₁ is selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 - (b) n is 0, 1 or 2;
 - (c) A₂, A₃, A₄ and A₅ are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur, provided that if any of A₂, A₃, A₄ and A₅ is nitrogen, oxygen, or sulfur, said A₂, A₃, A₄ and A₅ is not substituted with R₆, R₇, R₈ or R₉;
 - A₁ is carbon or nitrogen;
 - (d) R₁ and R₂ are independently selected from the group consisting of:
 - (i) hydrogen;
 - (ii) saturated or unsaturated alkyl;
 - (iii) NX₂X₃, where X₂ and X₃ are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 - (iv) halogen or trihalomethyl; and
 - (v) five-membered or six-membered heteroaryl ring moiety;
 - (e) R₃, R₄, R₅, R₆, R₇, R₈ and R₉ are independently selected from the group consisting of:

- (i) hydrogen;
- (ii) saturated or unsaturated alkyl;

- (iii) NX_4X_5 , where X_4 and X_5 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
- (iv) halogen or trihalomethyl;
- (v) $C(X_6)_3$ where X_6 is selected from the group consisting of fluorine, chlorine, bromine and iodine; and
- (vi) $-OX_7$, where X_7 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and a five-membered or six-membered aryl or heteroaryl ring moiety;
- (f) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered aryl ring moiety, wherein said five-membered or six-membered heteroaryl or six-membered aryl ring comprises two carbon atoms of said quinazoline-based compound to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached;
- (g) R_{11} and R_{12} are independently selected from the group consisting of
- (i) hydrogen;
 - (ii) saturated or unsaturated alkyl; and
- (h) Z' is nitrogen and R_{13} and R_{14} taken together form a five-membered or six-membered heteroaryl ring with Z' as a ring member, wherein said ring is optionally substituted with one, two, or three alkyl, halogen, trihalomethyl, carboxylate, and ester moieties.

12. (Twice amended) The method of claim 1, wherein said quinazoline-based compound has the formula set forth in formula V:



wherein:

- (a) R_1 and R_2 are independently selected from the group consisting of:
- (i) hydrogen;
 - (ii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl; and

(iii) benzyl;

(b) R_3 , R_4 , and R_5 are independently selected from the group consisting of:

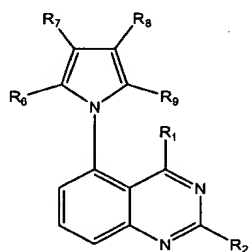
(i) hydrogen;

(ii) saturated or unsaturated alkyl; and

(iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl; and

(c) Z' is nitrogen and R_{13} and R_{14} taken together form a five-membered heteroaryl ring.

15. (Amended) The method of claim 1, wherein said quinazoline-based compound has a structure set forth in formula X:



(X)

wherein

(a) R_1 and R_2 are independently selected from the group consisting of hydrogen, $-NH_2$, provided at least one of R_1 and R_2 is $-NH_2$;

(b) R_6 , R_7 , R_8 , and R_9 are independently selected from the group consisting of

(i) hydrogen;

(ii) saturated or unsaturated alkyl;

(iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;

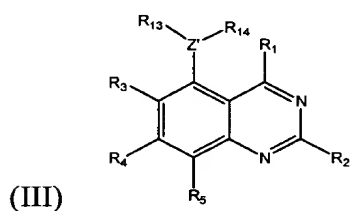
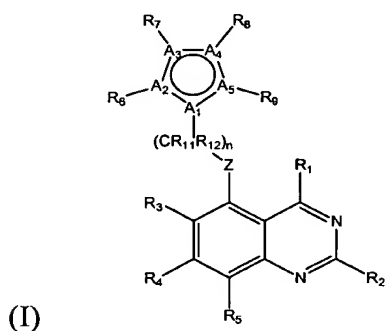
(iv) halogen;

(v) $C(X_6)_3$, where X_6 is selected from the group consisting of fluorine, chlorine, bromine, and iodine; and

(vi) OX_7 , where X_7 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and a five-membered or six-membered aryl or heteroaryl ring moiety.

17. (Twice amended) A method of treating an abnormal condition in an organism in need thereof, wherein said abnormal condition is a disease associated with an aberration in a signal transduction pathway characterized by an interaction between a

serine/threonine protein kinase and a natural binding partner, said method comprising the step of administering a quinazoline-based compound of formula I or III to said organism:



wherein:

(a) Z is oxygen, NX_1 , or sulfur, where X_1 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(b) n is 0, 1, 2, 3, or 4;

(c) A_2 , A_3 , A_4 and A_5 are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur,

provided that if any of A_2 , A_3 , A_4 and A_5 is nitrogen, oxygen, or sulfur, said A_2 , A_3 , A_4 and A_5 is not substituted with R_6 , R_7 , R_8 or R_9 ;

A_1 is carbon or nitrogen;

(d) R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 are independently selected from the group consisting of:

(i) hydrogen;

(ii) saturated or unsaturated alkyl;

(iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(iv) halogen or trihalomethyl;

(v) a ketone of formula $-\text{CO}-\text{X}_4$, where X_4 is selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(vi) a carboxylic acid of formula $-(\text{X}_5)_{n5}-\text{COOH}$ or ester of formula $-(\text{X}_6)_{n6}-\text{COOX}_7$, where X_5 , X_6 , and X_7 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n5$ and $n6$ are each independently 0 or 1;

(vii) an alcohol of formula $-(\text{X}_8)_{n8}-\text{OH}$ or an alkoxy moiety of formula $-(\text{X}_8)_{n8}-\text{OX}_9$, where X_8 and X_9 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n8$ is 0 or 1, and where said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(viii) $-\text{NHCOX}_{10}$, where X_{10} is selected from the group consisting of alkyl, hydroxyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties, wherein said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(ix) $-\text{SO}_2\text{NX}_{11}\text{X}_{12}$, where X_{11} and X_{12} are selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties; and

(x) a five-membered or six-membered heteroaryl or six-membered aryl ring moiety optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester moieties;

(e) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 , and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered aryl ring moiety, wherein said five-membered or six-membered heteroaryl or six-membered aryl ring comprises two carbon atoms of said quinazoline-based compound to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached;

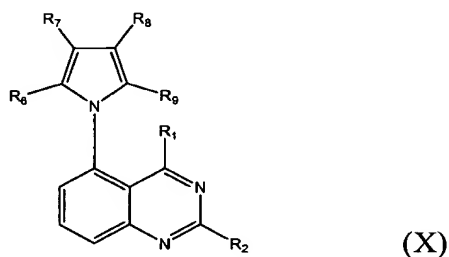
(f) R_{11} and R_{12} are independently selected from the group consisting of

(i) hydrogen;

(ii) saturated or unsaturated alkyl; and

(g) Z' is carbon or nitrogen and R_{13} and R_{14} taken together form a five-membered or six-membered heteroaryl ring with Z' as a ring member.

20. (Amended) The method of claim 17, wherein said quinazoline-based compound has a structure set forth in formula X:

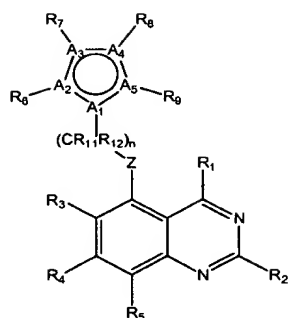


C5 wherein

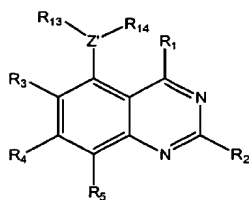
- (a) R_1 and R_2 are independently selected from the group consisting of hydrogen and $-NH_2$, provided at least one of R_1 and R_2 is $-NH_2$;
- (b) R_6 , R_7 , R_8 , and R_9 are independently selected from the group consisting of
 - (i) hydrogen;
 - (ii) saturated or unsaturated alkyl;
 - (iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 - (iv) halogen;
 - (v) $C(X_6)_3$, where X_6 is selected from the group consisting of fluorine, chlorine, bromine, and iodine; and
 - (vi) OX_7 , where X_7 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and a five-membered or six-membered aryl or heteroaryl ring moiety.

C6 23. (Amended) The method of claim 1, wherein said cancer is selected from the group consisting of lung cancer, ovarian cancer, breast cancer, brain cancer, intra-axial brain cancer, colon cancer, prostate cancer, Kaposi's sarcoma, melanoma, and glioma.

C7 26. (Twice amended) A quinazoline compound having the formula I or III:



(I)



(III)

67 wherein:

(i) Z is oxygen, NX_1 , or sulfur, where X_1 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(ii) n is 0, 1, 2, 3, or 4;

(iii) A_2 , A_3 , A_4 and A_5 are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur,

provided that if any of A_2 , A_3 , A_4 and A_5 is nitrogen, oxygen, or sulfur, said A_2 , A_3 , A_4 and A_5 is not substituted with R_6 , R_7 , R_8 or R_9 ;

A_1 is carbon or nitrogen;

(iv) R_1 and R_2 are independently selected from the group consisting of:

(a) hydrogen;

(b) saturated or unsaturated alkyl;

(c) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;

(d) halogen or trihalomethyl; and

(e) five-membered or six-membered heteroaryl ring moiety;

(v) R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 are independently selected from the group consisting of:

(a) hydrogen;

(b) saturated or unsaturated alkyl;

(c) $\text{NX}_{13}\text{X}_{14}$, where X_{13} and X_{14} are independently selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered aryl or heteroaryl ring moieties;

(d) halogen or trihalomethyl;

(e) a ketone of formula $-\text{CO}-\text{X}_4$, where X_4 is selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(f) a carboxylic acid of formula $-(\text{X}_5)_{n5}-\text{COOH}$ or ester of formula $-(\text{X}_6)_{n6}-\text{COOX}_7$, where X_5 , X_6 , and X_7 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n5$ and $n6$ are each independently 0 or 1;

(g) an alcohol of formula $-(\text{X}_8)_{n8}-\text{OH}$ or an alkoxy moiety of formula $-(\text{X}_8)_{n8}-\text{OX}_9$, where X_8 and X_9 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n8$ is 0 or 1, and where said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(h) $-\text{NHCOX}_{10}$, where X_{10} is selected from the group consisting of alkyl, hydroxyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties, wherein said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(i) $-\text{SO}_2\text{NX}_{11}\text{X}_{12}$, where X_{11} and X_{12} are selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties; and

(j) a five-membered or six-membered heteroaryl or six-membered aryl ring moiety optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester moieties;

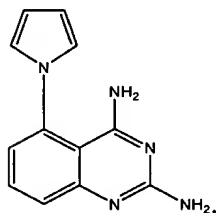
(vi) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 , and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered aryl ring moiety, wherein said five-membered or six-membered heteroaryl or six-membered aryl ring comprises two carbon atoms of said quinazoline compound to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached;

(vii) R_{11} and R_{12} are independently selected from the group consisting of

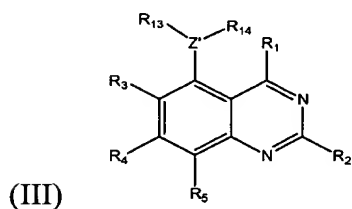
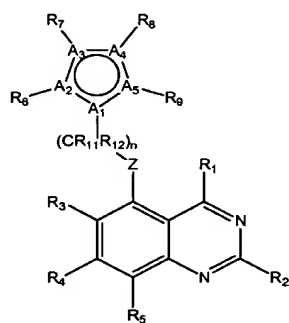
(i) hydrogen;

(ii) saturated or unsaturated alkyl; and

(viii) Z' is carbon or nitrogen and R₁₃ and R₁₄ taken together form a five-membered or six-membered heteroaryl ring with Z' as a ring member;
with the proviso that the compound of formula (I) or (III) is not



27. (Twice amended) A quinazoline compound having the formula I or III:



wherein:

- (a) Z is oxygen, NX₁, or sulfur, where X₁ is selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
- (b) n is 0, 1, or 2;
- (c) A₂, A₃, A₄ and A₅ are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur,
provided that if any of A₂, A₃, A₄ and A₅ is nitrogen, oxygen, or sulfur, said A₂, A₃, A₄ and A₅ is not substituted with R₆, R₇, R₈ or R₉;
- A₁ is carbon or nitrogen;
- (d) R₁ and R₂ are independently selected from the group consisting of:
 - (i) hydrogen;

(ii) saturated or unsaturated alkyl;
 (iii) NX_2X_3 , where X_2 and X_3 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 (iv) halogen or trihalomethyl; and
 (v) five-membered or six-membered heteroaryl ring moiety;
 (e) R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 are independently selected from the group consisting of:

(i) hydrogen;
 (ii) saturated or unsaturated alkyl;
 (iii) NX_4X_5 , where X_4 and X_5 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 (iv) halogen or trihalomethyl;
 (v) $C(X_6)_3$, where X_6 is selected from the group consisting of fluorine, chlorine, bromine and iodine;
 (vi) $-OX_7$, where X_7 is selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and a five-membered or six-membered aryl or heteroaryl ring moiety;

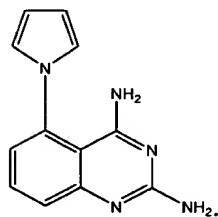
(f) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered arylring moiety, wherein said five-membered or six-membered aryl or six-membered heteroaryl ring comprises two carbon atoms of said quinazoline compound to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached;

(g) R_{11} and R_{12} are independently selected from the group consisting of

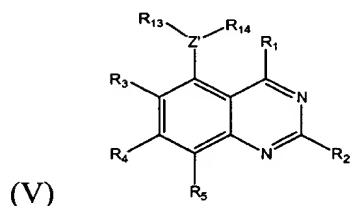
(i) hydrogen; and
 (ii) saturated or unsaturated alkyl; and

(h) Z' is nitrogen and R_{13} and R_{14} taken together form a five-membered or six-membered heteroaryl ring with Z' as a ring member, wherein said ring is optionally substituted with one, two, or three alkyl, halogen, trihalomethyl, carboxylate, and ester moieties;

with the proviso that the compound of formula (I) or (III) is not



28. (Twice amended) A quinazoline compound having the structure set forth in formula V:



wherein:

(a) R_1 and R_2 are independently selected from the group consisting of:

(i) hydrogen;

(ii) NX_1X_2 , where X_1 and X_2 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl; and

(iii) benzyl;

(b) R_3 , R_4 , and R_5 are independently selected from the group consisting of:

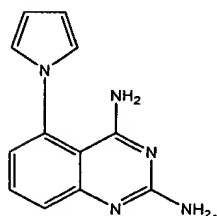
(i) hydrogen;

(ii) saturated or unsaturated alkyl; and

(iii) NX_3X_4 , where X_3 and X_4 are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;

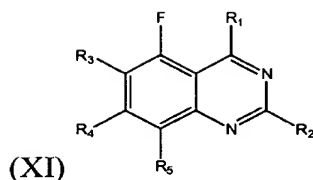
(c) Z' is nitrogen and R_{13} and R_{14} taken together form a five-membered heteroaryl ring;

with the proviso that the compound of formula (V) is not

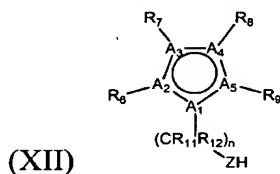


34. (Twice amended) A method for synthesizing a compound of claim 26, comprising the steps of:

(a) reacting a first reactant with a second reactant to yield said compound, wherein said first reactant has a structure of formula XI:



and wherein said second reactant has a structure of formula (XII):



wherein,

- (a) Z is oxygen or sulfur;
- (b) n is 0, 1, 2, 3, or 4;
- (c) A₂, A₃, A₄, and A₅ are independently selected from the group consisting of carbon, nitrogen, oxygen, and sulfur, provided that if any of A₂, A₃, A₄ and A₅ is nitrogen, oxygen, or sulfur, said A₂, A₃, A₄ and A₅ is not substituted with R₆, R₇, R₈ or R₉;
- A₁ is carbon or nitrogen;
- (d) R₁ and R₂ are independently selected from the group consisting of:
- (i) hydrogen;
 - (ii) saturated or unsaturated alkyl;
 - (iii) NX₂X₃, where X₂ and X₃ are independently selected from the group consisting of hydrogen and saturated or unsaturated alkyl;
 - (iv) halogen or trihalomethyl; and
 - (v) five-membered or six-membered heteroaryl ring moiety;
- (e) R₃, R₄, R₅, R₆, R₇, R₈, and R₉ are independently selected from the group consisting of:
- (i) hydrogen;
 - (ii) saturated or unsaturated alkyl;
 - (iii) NX₁₃X₁₄, where X₁₃ and X₁₄ are independently selected from the group consisting of hydrogen, saturated or unsaturated alkyl, and five-membered or six-membered aryl or heteroaryl ring moieties;

(iv) halogen or trihalomethyl;

(v) a ketone of formula $-\text{CO}-\text{X}_4$, where X_4 is selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties;

(vi) a carboxylic acid of formula $-(\text{X}_5)_{n5}-\text{COOH}$ or ester of formula $-(\text{X}_6)_{n6}-\text{COOX}_7$, where X_5 , X_6 , and X_7 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n5$ and $n6$ are 0 or 1;

(vii) an alcohol of formula $-(\text{X}_8)_{n8}-\text{OH}$ or an alkoxy moiety of formula $-(\text{X}_8)_{n8}-\text{OX}_9$, where X_8 and X_9 are independently selected from the group consisting of alkyl and five-membered or six-membered heteroaryl or six-membered aryl ring moieties and where $n8$ is 0 or 1, and where said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(viii) $-\text{NHCOX}_{10}$, where X_{10} is selected from the group consisting of alkyl, hydroxyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties, wherein said ring moieties are optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester;

(ix) $-\text{SO}_2\text{NX}_{11}\text{X}_{12}$, where X_{11} and X_{12} are selected from the group consisting of hydrogen, alkyl, and five-membered or six-membered heteroaryl or six-membered aryl ring moieties; and

(x) a five-membered or six-membered heteroaryl or six-membered aryl ring moiety optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, trihalomethyl, carboxylate, and ester moieties;

(f) any adjacent R_3 , R_4 , and R_5 or any adjacent R_6 , R_7 , R_8 , and R_9 are fused together to form a five-membered or six-membered heteroaryl or six-membered aryl ring moiety wherein said five-membered or six-membered heteroaryl or six-membered aryl ring comprises two carbon atoms of the ring to which R_3 , R_4 , and R_5 or R_6 , R_7 , R_8 , and R_9 are attached;

(g) R_{11} and R_{12} are independently selected from the group consisting of

(i) hydrogen; and

(ii) saturated or unsaturated alkyl; and

(b) collecting a precipitate comprising said compound.